

Homework 6, Problem 1 needs some correction and clarification.

- (c) The circuit should have nine or ten AND and OR gates in total, depending on your definition of “straightforward” (rather than seven as given in the original assignment). You will have to use inverters for at least some of the inputs (to produce $\overline{a_0}$, $\overline{a_1}$, $\overline{a_2}$, $\overline{a_3}$), but there is no charge for this when counting AND and OR gates.
- (d) You should use fewer than nine (rather than seven) AND and OR gates, but try to use as few as possible.

It may be tempting to use Boolean algebra to convert a formula to something simpler. This may not be sufficient since your formula and circuit from parts (b) and (c) (presumably) make all of the inputs with an even number of 1's have output 00. In general your circuit is not restricted in this way, and you may be able to take advantage of this to help produce simpler formulas and circuits.